Claims:

1. An environmentally benign process for the simultaneous preparation of the nanocrystalline anatase titanium dioxide powder having particle size in the range of 1 to 5 nm and hydrazine monohydrochloride, said process comprising the steps of:
   i. adding hydrazine monohydrate solution drop wise to acidic aqueous solution of titanium tetra chloride at temperature in the range of 20 to 45 °C with constant stirring to form precipitate,
   ii. filtering the precipitate of step (a) to obtain titanium dioxide having particle size in the range of 1 to 5 nm and optionally freeze drying and washing the filtrate to obtain hydrazine monohydrochloride.
2. The process as claimed in claim 1 wherein step (a) acidic aqueous solution of titanium tetrachloride contains $TiCl_4$ in the range of 5 to 40% v/v.
3. The process as claimed in claim 1 wherein step (a), hydrazine monohydrate solution contains hydrazine monohydrate in the range of 10 to 99% v/v.
4. The process as claimed in claim 1 wherein step (a), hydrazine monohydrate solution contains 99% v/v hydrazine monohydrate.
5. The process as claimed in claim 1 wherein, the temperature is in the range of 20 to 40 °C.
6. The process as claimed in claim 1 wherein step (a), pH of the mixture of hydrazine monohydrate solution and acidic aqueous solution of titanium tetrachloride is in the range of 7 to 8.
7. The process as claimed in claim 1, wherein step (a) is carried out in nitrogen atmosphere.
8. The process as claimed in claim 1, wherein the anatase titanium dioxide Nanoparticles having BET surface area in the range of 200 –250 m^2/gm are obtained.
9. The process as claimed in claim 1, wherein hydrazine monohydrochloride obtained by freeze drying the filtrate and washing the filtrate with water at a temperature in the range of –60 to –40 °C.
10. The process as claimed in claim 1, the yield of anatase titanium dioxide and hydrazine monohydrochloride is above 95%.

11. Nanocrystalline anatase titanium dioxide powder obtained by the process as claimed in claim 1, wherein particle size of the nanocrystalline titanium dioxide is in the range of 1 to 5 nm.

12. Nanocrystalline anatase titanium dioxide powder obtained by the process as claimed in claim 1, wherein BET surface area of nanocrystalline anatase titanium dioxide powder is in the range of 200 – 250 m^2/gm.